very large, covered inside and out with short reddish hairs. Whiskers long and numerous. Tail long, about equal in length to the head and body; the proximal half having short hairs of the same colour as the back; on the distal portion the fine silky hairs gradually lengthen till it may be called bushy; these longer hairs are almost liver-colour throughout. The scales, which are almost entirely concealed by the hair throughout the length of the tail, are exceedingly fine, about twenty to the centimetre. The feet are thick in the digital portion, the pads very large and rounded, entirely covering the fore part of the foot. The claws of both fore and hind feet are very small and curved, almost concealed by the hairs.

The actual locality of the type (B. M. no. 97. 2. 18. 1) is unknown, but one of the specimens is endorsed "Otjimbinque, Damaraland."

Measurements (taken from the skin):—

Head and body 135 millim.; tail 135*; ear (relaxed) 20·5; hind foot (relaxed) 24.

The skull is chiefly remarkable in having extremely wide open infraorbital openings and very short snout. The supraorbital ridges are well developed, but not beaded. The teeth are rather broad. The palate narrow and furrowed; the foramina extend back about half the length of $\frac{m.1}{}$, the back of the palate is even with the back of the molars.

Measurements:—Skull 31 millim.; br. 16; constr. 4·5; nasals 10·5 × 2·5; interpar. 4·5 × 9·5; hens. to back of pal. 13·1; pal. foram. 7·5; $\frac{m.3}{}$ 5·3; diastema 7·5; br. outside $\frac{ms.1}{}$ 6, inside 2·5; mandible, length (bone only) 17, to tips of incisors 20, height 9·2.

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## PROCEEDINGS OF LEARNED SOCIETIES.

### GEOLOGICAL SOCIETY.

January 6, 1897.—Dr. Henry Hicks, F.R.S., President, in the Chair.

The following communication was read:—

1. 'On the Structure of the Skull of a Pliosaur.' By C. W. Andrews, Esq., B.Sc., F.G.S.

The paper deals with a specimen of the Plesiosaurian known as *Pliosaurus ferox*, Sauvage, obtained by Mr. A. N. Leeds from the Oxford Clay near Peterborough, and now in the British Museum,

* The tail of the type specimen being broken, this measurement is taken from another specimen (B. M. no. 81. 8. 3. 11) from the same locality of about the same size.

and perhaps the finest Pliosaur skull known. It bears a great similarity to *Peloneustes philarchus*, but there are a number of differences which tend to show that the subject of the present communication is not the skull of an old individual of *Peloneustes*. Although the teeth of the fossil here described agree precisely with those described by Sauvage from the same horizon at Boulogne under the name *Liopleurodon ferox*, they differ considerably from those of the Kimeridge Clay upon which Owen founded the genus *Pliosaurus*; they, however, show a distinct tendency towards the typical form, and since the skull and skeleton of the Oxfordian and Kimeridgian forms are, so far as known, closely similar, the Author prefers for the present to follow the British Museum Catalogue in referring them both to one genus, *Pliosaurus*.

The Author gives a detailed description of the skull which forms the subject of the paper.

February 3, 1897.—Dr. Henry Hicks, F.R.S., President, in the Chair.

The following communication was read:—

1. 'The Subgenera *Petalograptus* and *Cephalograptus*.' By Miss G. L. Elles.

The forms referred to in the paper are accepted as subgenera of *Diplograptus*, as defined by Lapworth. The two subgenera have frequently been much confused, but examination of specimens preserved in relief shows that they have very distinctive characters, especially at the proximal ends. The Author gives diagnoses of the two subgenera, and detailed descriptions of the following forms:—*Petalograptus folium*, His.; *P. palmeus*, Barr., and varieties *latus*, Barr., *tenuis*, Barr., *ovato-elongatus*, Kurck; *P. ovatus*, Barr.; *P.* n. sp.; *Cephalograptus cometa*, Gein.; and *C.* n. sp.

She concludes that *Petalograptus* has been derived from *Orthograptus foliaceus*, *O. truncatus* having been a step on the way. The latter form has an almost horizontal connecting-canal, so that the first of the second series of hydrothecæ arises at nearly the same level as the first of the primordial series; whilst, if the connecting-canal became more oblique and the thecæ more concavely curved, a form identical with *P. palmeus* would be the result. Further changes would give rise to *P.* n. sp., and subsequently to *P. folium*. When the first theca of the second series arises so late that the sicula is entirely free on the side remote from that on which the first of the primordial series arises, an important stage is reached, and the form becomes a *Cephalograptus*. Such a form is furnished by *C.* n. sp., which is in some respects intermediate between *Petalograptus* and *Cephalograptus*. The extreme form is reached in *C. cometa*, in which the first hydrotheca of the second series is still later, the hydrothecæ are still longer than those of earlier forms and almost parallel to the long axis of the rhabdosoma. The other known forms of *Petalograptus* may have been derived from *P. palmeus*.

It seems exceedingly likely that the *Petalograpti* had a *Phyllograptus* as a remote ancestor, but the evidence for this is not yet complete, nor can the Author state whether *Cephalograptus* had a further stage in a form of *Dimorphograptus*.

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## MISCELLANEOUS.

### *What are the Names of the Crayfish and Lobster?*

By R. I. Pocock.

The hope of being able to supply an answer to the above question gives me the courage at this juncture to intervene in the discussion concerning *Astacus* and *Potamobius* started in the 'Annals' of last December by Prof. Bell; for, in spite of all that has been written on the subject, it may be doubted whether those who are not specially conversant with the questions of nomenclature that have been raised are any more enlightened as to the correct names of these now famous crustaceans than they were before the controversy began.

It seems to me, however, that the question may be set at rest by the application of a principle in nomenclature which is becoming widely accepted amongst systematic zoologists, and will doubtless be universally admitted when our views are a little more coherent and advanced than they are at the present time. It is one of the principles for selecting the type species of a genus when no type has been designated by its author, and may be stated as follows:—When the name of a genus is the same as that of one of its component species, that species is the type of the genus.

If this principle be applied to the case of the lobster and the crayfish, it will be found that the name *Astacus* must be attached to the latter, for in both the tenth and twelfth editions of the 'Systema' Linnæus called the Swedish crayfish *Cancer astacus*; and since *Astacus* was subsequently used by both Gronovius and Fabricius as a generic term for a group comprising amongst other species the *Cancer astacus* of Linnæus, the latter is *ipso facto* the type of the genus *Astacus*. Therefore the name of the Swedish crayfish is *Astacus astacus* (Linn.). With *Astacus* thus fixed definitely on to the crayfish, *Homarus* will, it seems, without let or hindrance, resume its place for the lobster, with the specific name *gammarus* which Linnæus assigned to it.

This appears to me to be a sensible and simple solution of this and other similar cases. In the present instance it does away with difficulties arising in connexion with the subsequent actions of Leach, White, Milne-Edwards, and others, and is independent of the selection of the tenth or twelfth edition of the 'Systema' as the starting-point in systematic zoology.

In conclusion, there is one little point about which it may perhaps be permitted to me to put Mr. Stebbing right. From some words that appear in his contribution to the present discussion it is to be inferred, though perhaps wrongly, that he considers a semi-official system of nomenclature to be in vogue at the Natural History